

CLAIMS

What is claimed is:

1. A method of using a set of calibration standards comprised of a plurality of ferromagnetic slugs to provide a temperature calibration for a VTGA comprising:
 - 5 determining the Curie temperature of a slug;
 - placing the slug in a sample holder of a VTGA within a magnetic field;
 - setting a temperature of the VTGA to a temperature corresponding to a set-point temperature greater than the Curie temperature of the slug by an amount equal to a first offset value;
 - 10 holding the temperature of the VTGA at a temperature corresponding to a set-point temperature for a first time interval sufficient to allow the VTGA to thermally equilibrate;
 - increasing the temperature of the VTGA to a set-point temperature greater than an immediately preceding set-point by amount equal to a second offset value;
 - 15 holding the temperature of the VTGA at a temperature corresponding to a set-point temperature for a second time interval sufficient to allow the VTGA to thermally equilibrate; and,
 - if the slug does not lose magnetization, then repeating the previous two operations, afterwards returning to this test; but if not, then recording the set-point temperature at which the slug loses magnetization as the apparent Curie temperature of 20 the slug.

2. The method in claim 1 wherein each of said ferromagnetic slugs is comprised of an alloy containing an amount of a ferromagnetic constituent and an amount of a non-ferromagnetic constituent.

3. The method in claim 1 wherein each of said ferromagnetic slugs is comprised of a alloy containing Ni and Cu, and wherein an amount of Cu is within the range of 15% to 28%.

4. A method of using a set of calibration standards comprised of a plurality of ferromagnetic slugs to provide a temperature calibration for a VTGA comprising:

determining the Curie temperature of a slug;

placing the slug in a sample holder of a VTGA within a magnetic field;

setting a temperature of the VTGA to a temperature corresponding to a set-point

temperature greater than the Curie temperature of the slug by about 10 C;

holding the temperature of the VTGA at a temperature corresponding to a

set-point temperature for about 1 hour;

increasing the temperature of the VTGA to a set-point temperature greater than an immediately preceding set-point by about 2 °C at a rate of about 5 degrees/min;

holding the temperature of the VTGA at a temperature corresponding to a set-point temperature for about 2 hours; and,

if the slug does not lose magnetization, then repeating the previous two operations, afterwards returning to this test; but if not, then recording the set-point

temperature at which the slug loses magnetization as the apparent Curie temperature of the slug.